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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/700,281

11/03/2003

Larry Lee Schumacher

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EXAMINER

TO, JENNIFER N

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

08/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/700,281	<b>Applicant(s)</b> SCHUMACHER ET AL.	
	<b>Examiner</b> JENNIFER N. TO	<b>Art Unit</b> 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/03/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. Claims 1-17 are presented for examination.

***Election/Restrictions***

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - i. Group I, claims 1-9, and 17, draw to a method of allocating thread to each composite map component for executing a dataflow application, classified in class 718, subclass 104.
  - ii. Group II, claims 10-16, draw to a method for detecting a deadlock, classified in class 718, subclass 102.
3. Inventions Group I, and Group II are related as subcombinations disclosed as usable together in a single combination. Group I is draw to a method of allocating thread to each composite map component for executing a dataflow application. Group II is draw to a method for detecting a deadlock. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, inventions Group I, and Group II have separate utility such as search for Group I invention is not require for Group II invention and vice versa. See MPEP § 806.05(d).
4. Because these inventions are distinct for the reasons given above and have required a separate status in the art shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for one group is not required for the other group, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Charles D. Huston on 08/12/2008 a provisional election was made without traverse to prosecute the invention of group II, claims 10-16. Applicant in replying to this Office action must make affirmation of this election, and cancel the non-elected claims 1-9 and 17. Claims 1-9 and 17 withdraw from further consideration by the examiner, 37 CFR 1.1142(b), as being draw to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter in which the applicant regards as his invention.

Art Unit: 2195

9. Claims 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The claim language in the following claims is not clearly understood:
  - i. as per claim 10, lines 3-9, it is not clearly understood what is the relationship between the allocating step with the determining steps (i.e. the claimed recited a method for deadlock management based upon the determining steps, but there is nowhere in the claim shown the step of allocating actually being used to perform the method of deadlock management).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakivaya et al. (hereafter Kakivaya) (U.S. Patent No. 7124405), and in view of Tabloski et al. (hereafter Tabloski) (U.S. Patent No. 5999729).

12. Tabloski was cited in the previous office action.

Art Unit: 2195

13. As per claim 10, Kakivaya teaches the invention substantially as claim including a method of deadlock management in a multi-thread system (col. 1, lines 10-11; col. 2, lines 5-9, 64 through col. 3, line 1) comprising:

determining if a thread is blocked, waiting on another thread, and determining if the blocked thread is sending data or receiving data (col. 4, lines 20-26; col. 16, line 66 through col. 17, line 7); and

determining if a deadlock exists by building a wait graph of the blocked threads in the system, and determining if the graph is cyclic, that is waiting on itself, indicating a deadlock does exist (col. 10, lines 13-35; col. 10, lines 40-62).

14. Kakivaya did not specifically teach parallel processing data management system having ports for sending and receiving data tokens, allocating at least one thread to a first process and at least one thread to a second process, wherein the first and second processes are connected through a queue via ports.

15. However, Tabloski teaches parallel processing data management system having ports for sending and receiving data tokens (abstract, lines 10-14; col. 1, line 65 through col. 2, line 3), allocating at least one thread to a first process and at least one thread to a second process, wherein the first and second processes are connected through a queue via ports (col. 6, lines 60-64; col. 7, lines 49-56).

Art Unit: 2195

16. It would have been obvious to one of another skill in the art at the time the invention was made to have combined the teaching of Kakivaya and Tabloski because Tabloski teaching of teaches parallel processing data management system having ports for sending and receiving data tokens and allocating at least one thread to a first process and at least one thread to a second process, wherein the first and second processes are connected through a queue via ports would improved the integrity of Kakivaya's system by simplifying development and processing of programs for parallel processing system (Tabloski, col. 1, lines 34-36).

17. As per claim 11, Tabloski teaches blocking a receiving port when a limit on the number of data tokens in the queue is reached (abstract, lines 20-22).

18. As per claim 12, Tabloski teaches blocking a sending port when a limit on the number of data tokens in the queue is reached (abstract, lines 20-22).

19. As per claim 13, Kakivaya teaches building a wait graph with the blocked threads and traversing the wait graph to determine if it is cyclic (col. 4, lines 5-18).

20. As per claim 14, Tabloski teaches correcting the deadlock by allowing the limit of data tokens on a queue to increase (col. 22, lines 38-45).

Art Unit: 2195

21. As per Claim 15, Tabloski further discloses the limit of a queue associated with a sending port is allowed to increase (col. 22, lines 38-45).

22. As per Claim 16, Tabloski further discloses the token batch size of another queue is decreased while the limit of the queue is increasing (col. 22, lines 35-50).

### ***Response to Arguments***

23. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see attached PTO 892 form for details).

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer N. To whose telephone number is (571) 272-7212. The examiner can normally be reached on M-T 7AM- 4:30 PM, F 7AM- 3:30 PM.

26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2195

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Meng-Ai An/  
Supervisory Patent Examiner, Art Unit 2195

Jennifer N To  
Examiner  
Art Unit 2195